



May 9, 2022

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Dear Coralie,

General Motors (GM) supports a net zero emissions future. As a full-line automaker, the company has committed more than 30 billion dollars to bring to market battery electric vehicles and fuel cell technology,¹ to expand production capacity for batteries and electric motors with U.S. and North American supply chains,^{2,3} and to realize the plan to be carbon neutral by 2040 in its global products and operations.⁴ GM has delivered early batches of zero emissions vehicles to fleet operators, and fleet operators are collaborating to show how businesses can take action to help usher in a lower-emissions future for all.^{5,6}

Scaling up the ZEV Medium-duty and Heavy-duty market

GM is working hard to scale up production of Battery Electric Vehicles and Fuel Cell Technology and intends to bring zero emissions vehicles and zero emissions technologies to market at scale as quickly as possible. Still the company is working to overcome many challenges fundamental to growing the market. Supply chains for battery related raw materials like nickel, lithium, and cobalt will need to expand many times over to deliver on a zero emissions future, and battery costs and availability of material supply may be volatile as the markets develop. GM appreciates policies with flexibilities that allow the company to adapt to intermittent market conditions while showing steady long-term progress towards our common goal of net zero emissions.

California Advanced Clean Trucks Rule

GM looks forward to bringing additional zero emissions medium-duty and heavy-duty vehicles to all fifty U.S. states and Canada, including those markets adopting the California Advanced Clean Trucks (ACT) regulations.⁷ For states opting into the California ACT program, GM encourages work with NESCAUM, and manufacturers, either directly or through coordination

¹ <https://investor.gm.com/news-releases/news-release-details/gm-will-boost-ev-and-av-investments-35-billion-through-2025>

² <https://investor.gm.com/news-releases/news-release-details/gm-accelerates-its-drive-lead-ev-industry-7-billion-investment>

³ <https://investor.gm.com/news-releases/news-release-details/gm-canadas-2-billion-transformational-investments-are-creating>

⁴ <https://investor.gm.com/news-releases/news-release-details/general-motors-largest-us-automaker-plans-be-carbon-neutral-2040>

⁵ <https://investor.gm.com/news-releases/news-release-details/brightdrop-delivers-1st-all-electric-ev600-vehicles-fedex>

⁶ <https://investor.gm.com/news-releases/news-release-details/brightdrop-announces-walmart-new-ev-customer-and-expands>

⁷ <https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2019/act2019/fro2.pdf>

with industry trade associations, to adequately prepare to administer the program. It will be important to develop a common understanding of expectations regarding reporting, transactions qualifying for zero emissions vehicle (ZEV) credits, and timing.

The Advanced Clean Trucks regulation says that manufacturers earn a ZEV credit when the zero emissions vehicle is “sold to the ultimate purchaser” in the state, which is currently understood to be different than when a vehicle is “produced and delivered for sale”. Many questions remain about how to practically count vehicles and transactions that qualify for the ACT ZEV credit, especially considering common business practices in the medium-duty and heavy-duty markets. For instance:

- Manufacturers may have limited visibility into dealer activities related to the “ultimate purchaser” of the vehicles.
- Medium-duty and heavy-duty sales of new on-road vehicles may occur between business entities, executed by representatives in corporate offices. The location of the “ultimate purchaser”, and the intended geography of use, or location of first registration for a specific new fleet vehicle may be unclear at the time of initial sale.
- In some segments of the Medium-Duty and Heavy-Duty markets, upfitters play a significant role. These businesses may hold inventory and complicate manufacturer reporting for ZEV credits in the ACT program.

The Advanced Clean Trucks program includes provisions for manufacturers to earn ZEV credits beginning with 2021 model year, which manufacturers may use to meet obligations in later model years as the ZEV Sales Percentage Schedule increases. The ability to earn early credits is an important flexibility for manufacturers, especially as the size of the ZEV sales percentage ramps up for states adopting ACT in 2025 and beyond. As additional states opt-in to ACT, it is important for these states to recognize that there will be reporting and administrative activities that they should be prepared to support well in advance of the “first year” of the program in their state. For instance, states adopting ACT in 2025, 2026, 2027, and beyond should make clear to manufacturers where to send reports and be prepared to communicate clearly on the recognition of early action ZEV credits. To the extent that NESCAUM or CARB will play a role on credit recognition and reporting on behalf of the states, the states should work with NESCAUM and CARB to make that clear.

GM encourages NESCAUM, CARB, and the states adopting the ACT to reach a Memorandum of Understanding with manufacturers, either directly or through a trade association, to clarify reporting practices related to “ultimate purchaser”, and to standardize reporting practices related to the recognition of early action ACT ZEV credits.

Refueling Infrastructure

Refueling infrastructure is critically important to adopters of Zero Emissions Vehicles. The availability of refueling infrastructure often plays a significant role in purchasing decisions.

Medium-duty and heavy-duty zero emissions vehicles often differ from light-duty vehicles in refueling needs.

Large battery electric vehicles need convenient, reliable access to high power chargers. Operators often weigh costs, including downtime during driver hours of service (regulated by Federal Motor Carriers Safety Administration), fuel costs, and refueling convenience when considering if zero emissions vehicles are right for them. NESCAUM correctly identifies that many medium-duty and heavy-duty vehicles do not have fixed routes, and many vehicles are owned and operated by small businesses, with only a few vehicles in the fleet. In many use cases, adopters of battery electric vehicles are likely to rely on publicly accessible chargers for most refueling.

Fuel cell vehicles, powered by clean hydrogen, may be an attractive zero emissions powertrain for very large vehicles. NESCAUM correctly identifies highway corridors and near highway rest areas as high potential locations for hydrogen fueling stations.

General Motors encourages states to take seriously the need for public refueling infrastructure to support the adoption and use of zero emissions vehicles. In many cases, groups of fast charging stations powered by the electricity grid will require advanced planning, and coordination with utilities to ensure safe and reliable operation. GM recognizes that placement and operation of refueling infrastructure can be a daunting challenge for policy makers and community planners interested in supporting the transition towards zero emissions. Still, these problems must be solved to enable widespread adoption of zero emission medium-duty and heavy-duty vehicles.

As part of General Motors commitment to a net zero future and the rapid adoption of zero emissions vehicles, GM has developed high output fast chargers suitable for temporary or permanent installation, without the need to renovate the local electricity grid.⁸ These installations produce electricity from hydrogen fuel cells. GM is hopeful that policy makers consider this option to quickly deploy DC fast charge stations with zero, or near zero upstream emissions. For more information on these systems, please contact Renewable Innovations,⁹ or a General Motors public policy team member who can put you in touch with appropriate team members.

Vehicle to Grid and Non-Road Electricity Generation

Large battery packs like the ones equipped on medium-duty and heavy-duty zero emissions vehicles are assets that may be used in many applications, including applications beyond moving the vehicle. For instance, an electric work truck may power equipment at a remote job site, replacing the need for a traditional generator. The battery on an electric vehicle may be used to provide electricity to a building for a time, or to return energy to the electricity grid in a coordinated effort with grid services when it is advantageous to do so. Innovative non-road uses of vehicle battery packs have the potential to further reduce emissions and provide societal

⁸ <https://media.gm.com/media/us/en/gm/news.detail.html/content/Pages/news/us/en/2022/jan/0119-hydrotec.html>

⁹ <https://www.renewable-innovations.com/ev-rapid-charging-reservation>

value. NESCAUM correctly identifies these ideas in the action plan and encourages states to support further development of such applications. GM is supportive of innovative uses of vehicle battery packs that create societal value and reduce emissions.¹⁰

CARB and the U.S. EPA are considering regulations on battery durability for vehicles on a mileage basis, or time basis. The ability of a battery to receive and provide electric charge, and to maintain that capability over many uses, depends on the number and type of charges and discharges, and the conditions of the battery pack and the environment at that time. These uses, especially for battery cycles related to non-road activities, are unlikely to be fully captured by vehicle mileage or age of the vehicle. GM is supportive of innovative uses of vehicle battery packs, but the scope of these applications may be limited due to future mileage-based battery durability regulations.

Summary

General Motors appreciates the effort and thought NESCAUM has put into the “Multi-State Medium- And Heavy-Duty Zero-Emission Vehicle Action Plan”. GM shares NESCAUM’s stated view that reliable and convenient refueling infrastructure, and state and Federal zero emissions vehicle incentives will play an important role in accelerating the adoption of zero emissions transportation technologies. GM is scaling up production capabilities of battery electric vehicles and hydrogen fuel cells and looks forward to working with NESCAUM, and state partners as we work towards our common goal of net zero emissions.

Sincerely,

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¹⁰ <https://investor.gm.com/news-releases/news-release-details/pge-and-general-motors-collaborate-pilot-reimagine-use-electric>